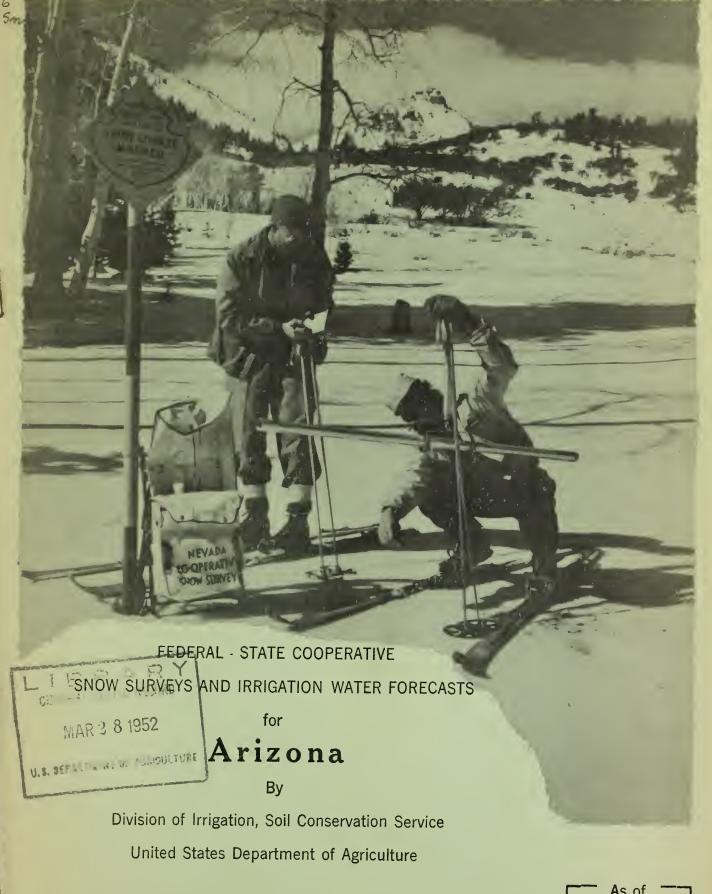
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Do not assume content reflects current scientific knowledge, policies, or practices.





Data included in this report were obtained by the agency named above in cooperation with the Federal, State and local organizations listed on the last page of this report.

As of

MAR. 15, 1952



FEDERAL-STATE COOPERATIVE

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

FOR

ARIZONA

Report Prepared

by

Burke Peterson - Irrigation Engineer

Division of Irrigation Soil Conservation Service Room 24, Post Office Building Phoenix, Arizona





ARIZONA COOPERATIVE SNOW SURVEYS

SNOW COURSES AND DRAINAGE BASINS
JANUARY 1952



INDEX TO SNOW COURSES

NUMBER NAME ELEVA	TION
LITTLE COLORADO RIVER	
2. McNary	,000 ,200 ,500 ,350 ,600 ,600 ,500 ,600 ,500 ,630 ,640
1. Iron Springs	,200
	,700 ,000
GILA RIVER	
1. Frisco Divide (N.M.)	,000
2. State Line (N.M.)	,000 ,500 ,000 ,000 ,850 ,800
8. Rose Canyon	300
	,100
VERDE RIVER	
2. Camp Wood	,200 ,700 ,100 ,350 ,350 ,100 ,500 ,930 ,300 ,500 ,630
	,000
3. Nutrioso	200 500 000 000 250 600 600 500 600 800 050 000 160 800 640 900
2. Grand Canyon	,400 ,500
5. Fort Valley	,350 ,100

WATER SUPPLY OUTLOOK

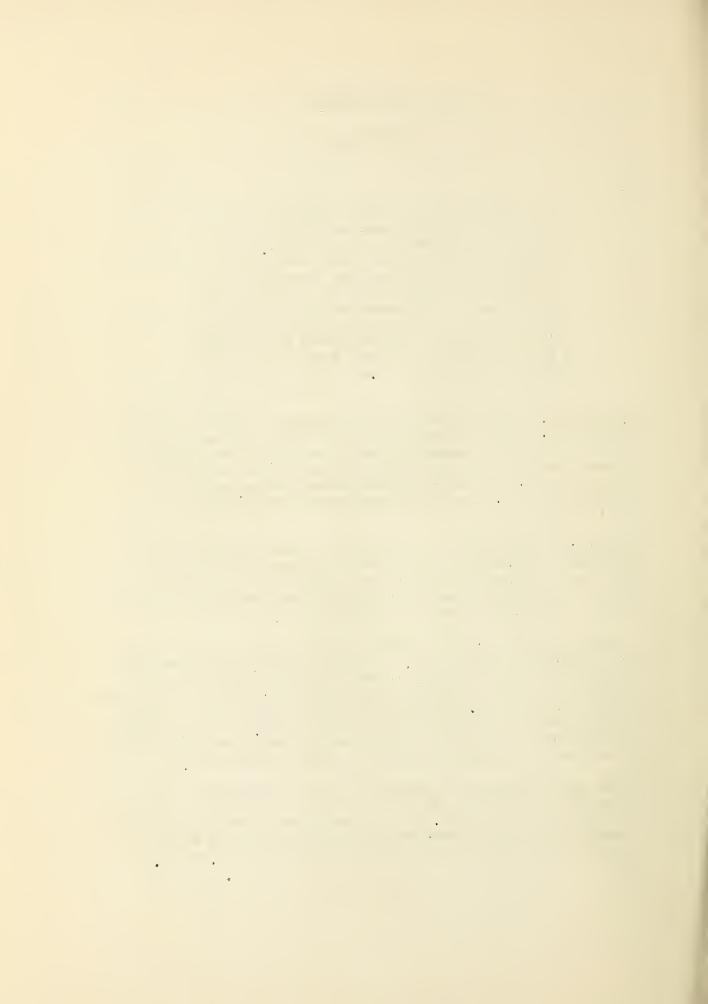
Arizona March 15, 1952

Precipitation: Precipitation has been above normal for the past 15-day period. Soil moisture conditions are at the saturation point throughout the mountain areas of the Salt, Verde and Little Colorado watersheds, and are very good on the Gila and Williams River watersheds. Range conditions throughout the State are generally very good. A good grass crop is anticipated for this year's range feed.

Snow Cover: During the past three weeks, three storms of major importance have deposited record-breaking amounts of snow for this time of the year on most of the watersheds of the State. With the exception of the Gila River Drainage, snow-stored water on these watersheds is about seven times normal.

Verde River Drainage: Generally, the Verde River watershed is covered with snow above the 5,000 foot elevation. Snow-stored water on this drainage varies from about five inches at Iron Springs and Mingus Mountain to about 15 inches in the Mormon Lake, Mormon Mountain areas. Happy Jack Forest Camp south of Mormon Lake is recording 12 inches of snow-stored water. The ground is exceptionally wet and the normal, above freezing seasonal temperatures should soon start this water moving into the rivers.

Salt River Drainage: The snow-stored water on the Salt River watershed is the greatest it has ever been at this time of the year in any year of record. Snow-stored water averages about six inches along the Coronado Trail, and ranges up to 18 inches contained in 63 inches of snow in the Eig Lake area of Mt. Baldy.



Snow along the Mogollon Rim is from three to four feet deep, and contains between 9 to 12 inches of snow-stored water. Ten inches of water is contained in two feet of snow at Maverick south of the Baldy Mountain.

Gila River Drainage: With the exception of the area in the vicinity of the Coronado Trail, the watershed of the Gila River does not have the exceptionally good snow cover that is present on the Salt and Verde Drainages. Soil moisture conditions, however, are very good on this drainage but the snow cover is not sufficient to insure runoff of above normal proportions.

Snow cover on the LittleColorado Drainage contains from 6 to 15 inches of snow-stored water. Soil moisture conditions are very good and prospects are that runoff from this stream will be considerably above normal.

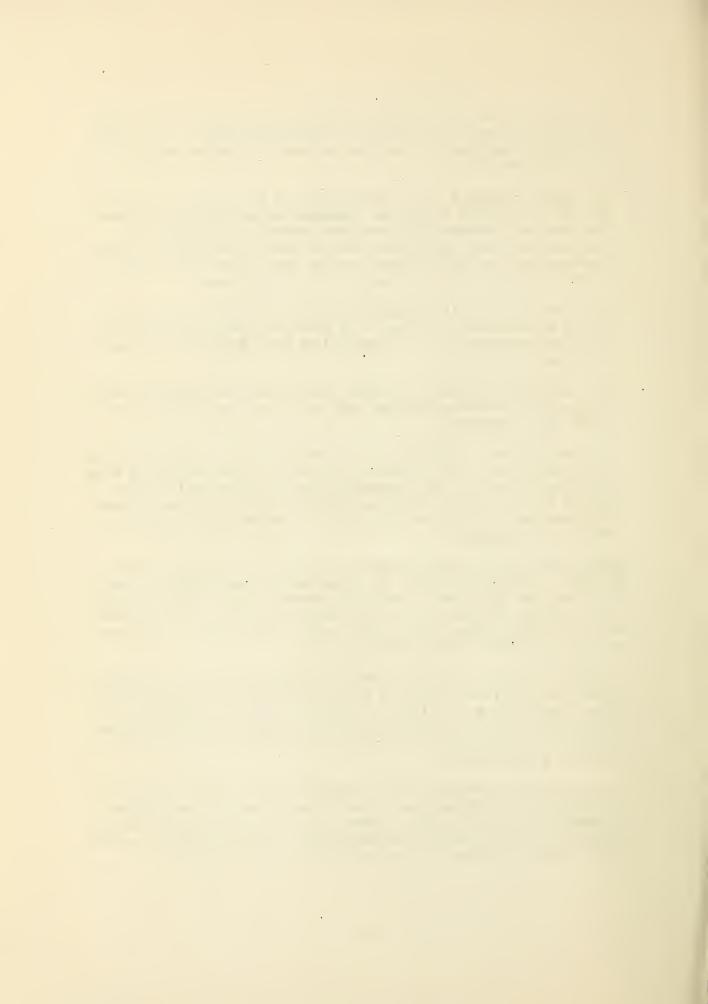
Soil moisture conditions are very good on the Bill Williams Drainage, and a better-than-average snow cover is present above the 6,000 foot elevation.

The deepest snow in the State was measured at the North Rim of the Grand Canyon where an average of 77 inches of snow contained about 25 inches of water. The snow-stored water on Arizona's contribution to the Colorado River is approximately three times normal for this time of year, and greater than any previous amount measured for this date.

Runoff: There is no question that the runoff from the Verde River watershed will fill and spill the dams on the Verde River. An additional 200,000 acre feet of water is forecast to run past the gauging station at Horseshoe Dam on the Verde River by the 1st of June. With warm spring rains, some damage could be done along the tributaries of the Verde from flood waters.

It is very possible that with favorable spring temperatures and precipitation, the four reservoirs on the Salt River will fill to capacity. Forecasts as of this date assure an additional 600,000 acre feet of water to flow past the Salt River gauging station at Roosevelt by the end of June, even though temperature and precipitation should be below normal.

With favorable conditions, it is possible that the Gila River will run an additional 100,000 acre feet of water into the San Carlos Reservoir by the 1st of June. From the present snow cover, runoff from the Agua Fria Drainage should bring the Carl Pleasant Dam storage to about 90 percent of its 178,000 acre feet capacity.



Reservoir Storage: Total storage in the Salt and Verde River Reservoirs is now at 52 percent of capacity. With the major portion of the runoff still to come, an assurance for the best water supply in ten years in the Salt River Project Reservoirs is a certainty. The Salt River project Reservoirs are now storing approximately 120 percent normal storage. Their combined storage is about 1,100,000 acre feet of water.

San Carlos Reservoir contains about 12 percent of capacity and about 60 percent of normal storage.

Lake Pleasant on the Agus Fria now contains 72 percent of capacity and about 128,000 acrs feet of water.

Lake Mead contains 16,115,000 acre feet; Lake Mohave, 1,601,000 acre feet; Lake Havasu, 610,000 acre feet. Lake Mead is being drawn down in anticipation of the greatest Spring runoff from the Colorado in years of record.

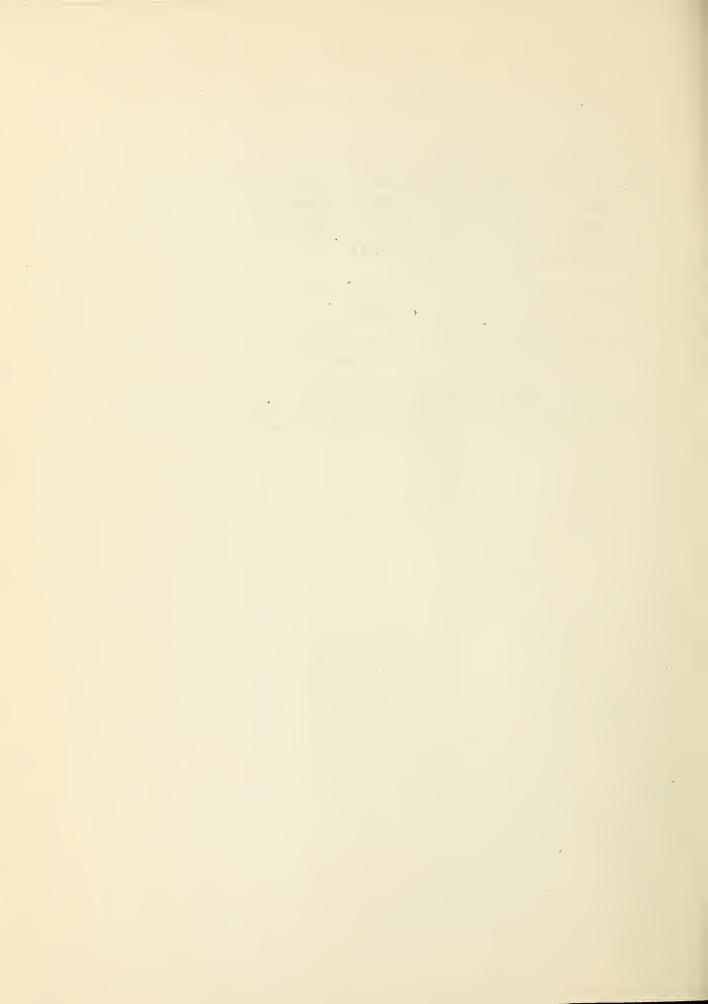
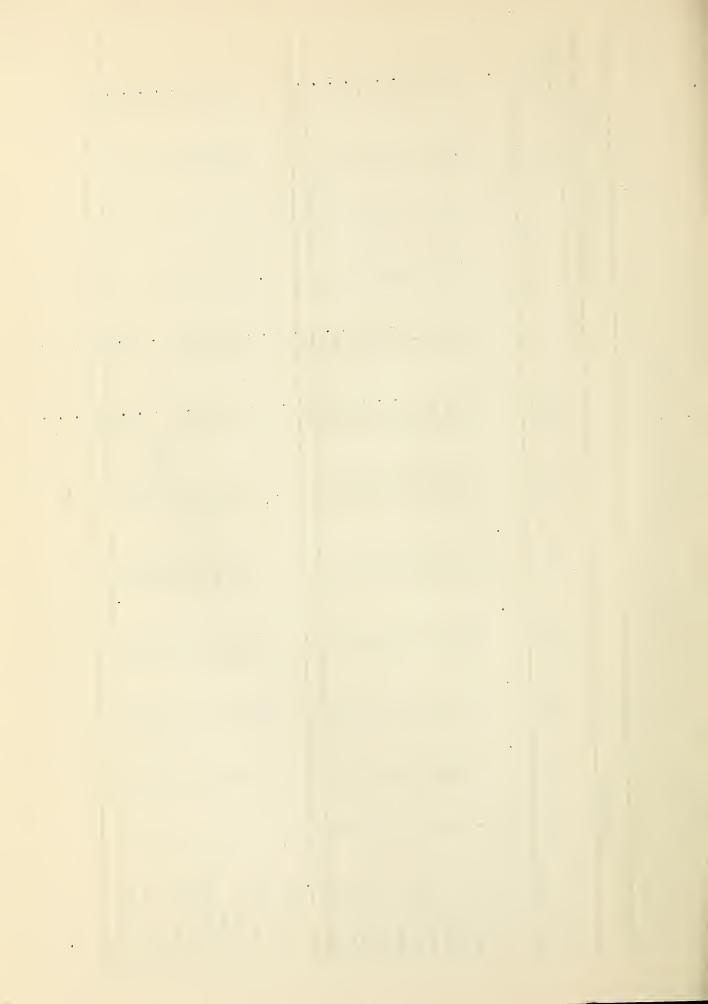


TABLE 1
ARIZONA SNOW SURVEYS MARCH 15, 1952

	RD	ər	n (t																						
SNIS	PAST RECORD	Avg.Water	Content (Inches'		6.0	7 0	5.8	2.5	0.0	0.0	0.0	0.0		1.3		1.4	2.3	1.6	3.0	2.5	0.3	† *0	0 L	- 4	(-1
SNOW COVER MEASUREMENTS	(Years	of Record		12		5	, ₁ C	N	α	α	α	Course			12	12	12	12	12	6	9.	. †	t	
I COVER 1	T(Inches		1950		0 (0	0	0	0	0	0			0		0	0	0	0	0	0	0	00		
	CONTENT		1951		0 (0	0	0	€~I	€⊣			0.5	Ţ		0	0	0	0	0	0	0	0 0		
	WATER		1952		9-	ッ シュ	11.9	9.1	8.3	9.3	11.6	1,1.8	11.6	8.8		2.1	2.9	3.3	2.9	7.8			4.0	7.0	7
		Snow	De pth (Inches)		7.5	11.0	40.7	32.7	34.0	36.8	42.9	55.0	39.6	31.8		8.6	9.1	11.0	첬	18	ort	ort	14.3	0.01 8	0 • † † †
		Da te	of Survey		3/15	2/15 3/17	3/14	3/15	3/14	3/13	3/13	3/15	3/14			3/15	3/15	3/17	3/17	3/15	No Repo	No Report	3/14	7/ 14	
		i	Elev.		6000	8500	7350	7350	0092	0092	7500	7500	7630			8000	8000	8500	8000	8000	7850	7800	7300	0770	
		i	кве•		21E	7.7点 3.0臣	8E	到9	15E	15E	15E	8E	9E			20W	SIW	30E	30E	30区	1 OW	10W	16E	100	
		Twp.		N6	en ON	18N	22N	11N	NII	11N	18N	17N			89	89	N9	5N	ν†	108	118	12S	150		
NOI		(ve c	œ	, N	53	13	22	36	58	18	14	90			31	9	63	56	13	50	9	15		
LOCATION			Number	OO RIVE	-10	υm	τ,	5	7	ω	0	11	12			Н	N	2		7	9	7	ω (7	
		DRAINAGE BASIN	and SNOW COURSE	LITTLE COLORADO RIVER	Forest Dale	Menary Nutrioso	Mormon Lake	Fort Valley	Gentry	Heber	Canyon Creek		Harpy Jack	Avg.	GILA RIVER	Frisco Divide	State Line	Nutrioso	Coronado Trail	Beaver Head	Taylor Creek	Inman	Rose Canyon	- 1	• 30



ויס	LOCATION	ودرا							SNOW COVER MEAS JREWENTS	ER MEAS J	REMENTS	
DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge•	Elev.	Date of Survey	Snow Depth (Inches)	WATER 1952	CONTENT (1	Inches)	Past Years An of Record	Avg. Water Content (Inches)
WILLIAMS RIVER												
Iron Springs	~	22	14,1	3W	9029	3/11	20.5	5.2	0	0	9	9.0
Camp Wood Willow Ranch	0 5	16	16N 21N	6W 11W	5700 5000	3/15 3/14	18.2	5.0 5.0	00	00	99	o.0
Avg.							14.2	3.1	0	0		0.3
SALT RIVER												
Forest Dale	Н	2	N6	21E	0009	3/15	7.2	2.6	0	0	12	0.3
WcNary	N	17	8N	23E	7200	7	18.3	5.4	0	0	12	1.2
Nutrioso	2	53	N9	30E	8500	3/17	11.0	3.3	0	0	12	1.6
Coronado Trail	4	56	5N	30E	8000	1	o. †3	6.7	0	0	12	3.0
Wilk Ranch	7	58	8il	23E	2000	\	15.0	7.0	0	0	11	0.5
Gentry	7	36	11N	1万	7600	3/13	34.0	8.3	E	0	N	0.0
Heber	8	88	11N	15臣	0092	1	36.8	9.3	E⊣	0	N	0.0
Canyon Creek	6	18	llN	15E	7500	`	45.9	11.6	₽	0	a	0.0
Maverick Fork	12	13	en 6	27E	9050	3/14	63.0	17.9	N.S.	7.0	ı	,
Baldy	13	58	7 N	27E	0006	3/14	55.2	15.6	0.4	3.0	ત્ય	3.5
Ft. Apache	77	18	7N	27E	0006	/	61.5	16.8	5.5	2.7	Q	4.1
Pacheta	15				7800	3/15	23.0	7.6	0.0	0.0	a	0
Workman Creek	17	33	6N	14E	5860	_	•	9.8	New Course	se se		
Avgs							32.5	9.3	0.8	1.4		1.2

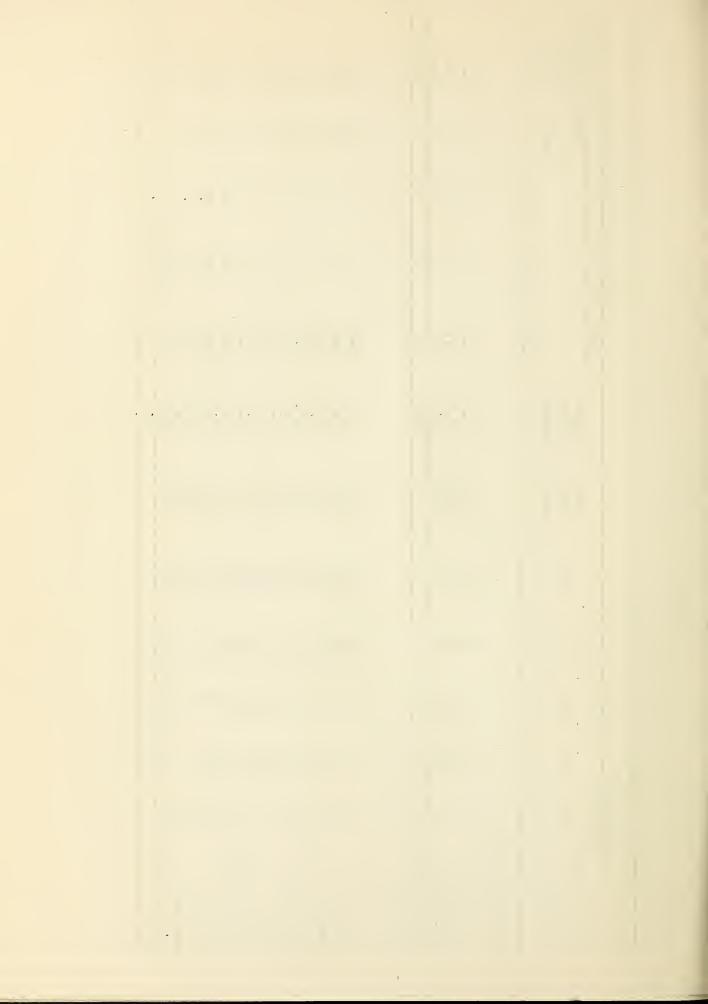


TABLE 1
ARIZONA SNOW SURVEYS MARCH 15, 1952

	LOCATION	les,						SNOW	SNOW COVER MEASUREMENTS	EASURE	ENTS	
								Wate	Water Content(Inches	t(Inche	s) Past	t Record
DRAINAGE BASIN and SNOW COURSE	Number	Sec.	-dwT	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	1952	1961	1950	Years of Record	Av.Water Content (Inches)
VERDE RIVER												
Iron Springs	- 1 α	22 ~	N4/1	3W 6W	6200	11/2 21/2	20.5 0.5	200	00	00	94	9.0
Mingus Mt.	12	m	15N	SE	7100	3/16	12.7	, v.	0	0	1	0.0
Mormon Lake	. 4	13	18N	8E	7350	3/14	40.7	11.9	N.R.	0	. ا	ν. Θ.
Fort Valley	2	55	SSN	(E	7350	3/15	32.7	9.1	€	0	7	2.2
Chalender	9	27	SSN	<u>3</u> E	7100	3/15	9.44	11.3	1.0	0	ΓV	2.7
Munds Park	ω	2	18N	7E	6500	3/14	27.5	8.0	E	0	Q	0
Casner Park	6	19	18N	8E	6930	3/14	38.0	11.0	€⊣	0	a	0
Antelope Fark	10	53	19N	8E	7300		52.0	14.5	E	Q	Q	0
Mormon Mt.	11	14	18N	8E	7500	3/15	55.0	14.8	0.4	0	N	0.0
Happy Jack	12	30	17N	9 <u>5</u>	7630	3/14	39.6	11.6	0.5	Menv C	Course	
Avg.							35.5	9.5	0.5	0		1.4
LOWER COLORADO RIVER	RIVER											
Bright Angel	٦	34	33N	3E	8400	3/15	77.3	24.6	6.8	11.3	7	10.1
Grand Canyon	Q	73	30M	√E	7500	3/15	29.5	7.3	0	0	N	1.4
Fort Valley	₽.	22	22M	E	7350	3/15	32.7	9.1	⊟	0	5	ر م
Chalender	9	57	SSN	3臣	7100	3/14	9*†/1	11.3	1.0	0		2.7
Avg.							0.947	13.1	1.9	2.8		4.1

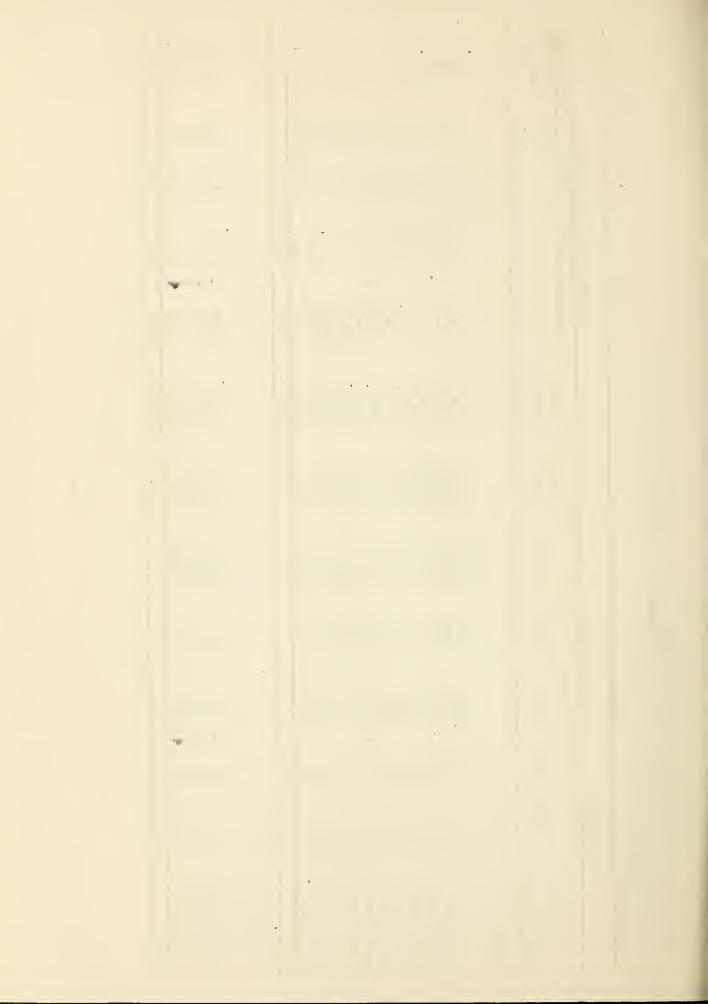
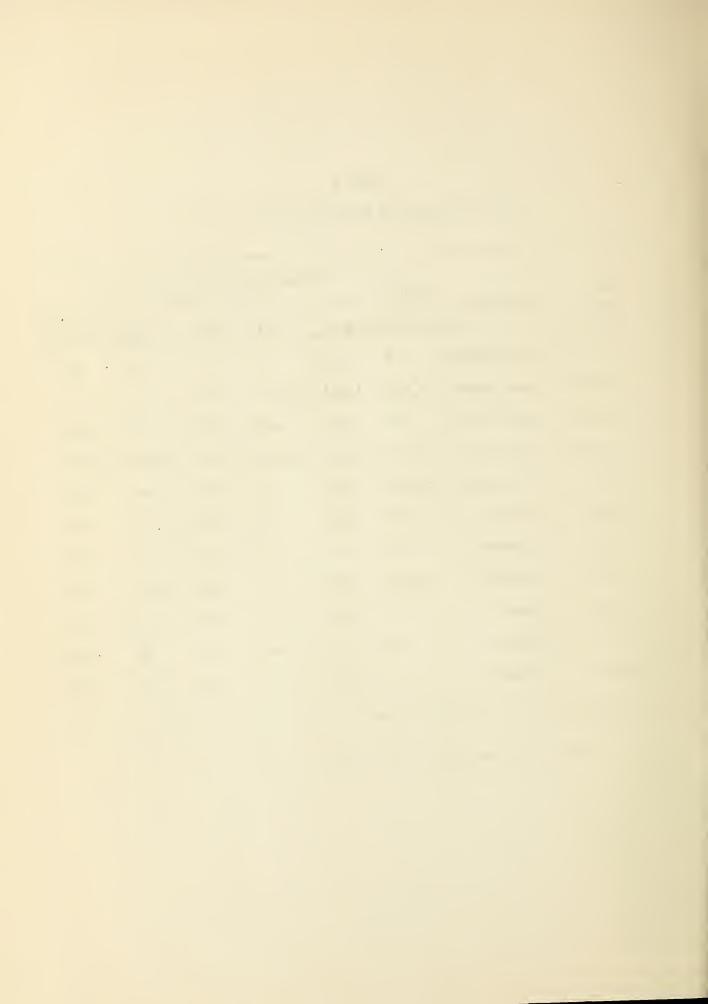


TABLE 2
STATUS OF RESERVOIR STORAGE, MARCH 15, 1952

BASIN		USABLE	TH		ACRE FEE		DRAGE
and STREAM		CAPACITY		1951	1950		10 Yr.Avg. 1941-1950
Agua Fria	Lake Pleasan	t 178	128	1	7	28	29
Colorado	Lake Mohave	1,810	1,601	1,587			
Colorado	Lake Havasu	688	610	628	662	576	587
Colorado	Lake Wead	27,935	16,115	17,031	17,961	17,950	19,017
Gila	San Carlos	1,285	159	0	88	242	266
Verde	Bartlett	180	152	7	70	95	75
Verde	Horseshoe	143	76	1	2	67	18 ^a
Salt	Roosevelt	1,382	559	6	311	282	569
Salt	Apache	245	217	159	225	120	202
Salt	Canyon	58	46	52	44	33	40
Salt	Saguaro	70	48	47	44	32	34

a - Average for years 1946 through 1950



LIST OF SNOW SURVEYORS

3NOW COURSE												SURVEYOR
Will and Demak												Ф №411 om
Willow Ranch												
Uamp Wood	•	•	•	•	•	•	•	•	•	•	•	Mrs. C. C. Merritt
Iron Springs Mingus Mountain. Fort Valley	•	•	•	•	•	•	•	•	•	•	•	H. Saxby
Mingus Mountain.	•	٠	•	•	•	•	•	•	•	•	•	M. F. Jones
Fort Valley	•	•	•	•	•	•	•	•	•	•	•	A. P. Loska
Chalender	•	٠	•	•	•	•	•	•	•	•	•	M. C. Oleson
Mormon Lake	•	٠	•	•	•	•	•	•	•	•	•	M. F. Greaves
Mormon Mt												
Casner Park	•		•	•	•	•	•	•	•	•	•	M. F. Greaves
Antelope Park	•		•	•		•	•	•	•			M. F. Greaves
Munds Park												M. F. Greaves
Happy Jack												Emil Ryberg
Workman Creek												C. L. Moore
Bear Wallow												Hughes and Snow
Bose Canyon.				Ĭ								Hughes and Snow
Canvon Creek	Ĭ				•	Ì	Ĭ	•		Ī	Ĭ	Peterson and West
Heher.	i	Ĭ	Ĭ	Ĭ	·	Ì	Ĭ	Ĭ	Ĭ	·	٠	Peterson and West
Gentry	i	i	•	·	i	i	Ĭ	i	i	·	•	Peterson and West
MoNory	•	•	•	•	•	•	•	•	•	•	•	Fair and Waggener
Forartdala	•	•	•	•	•	•	•	•	•	•	•	Fair and Waggener
Milk Danch	•	•	•	•	•	•	•	•	•	•	•	Fair and Waggener
Milk Raildi • • •	•	•	•	•	•	•	•	•	•	•	٠	Patr and waggener
Ft. Apache	•	•	•	•	•	•	•	•	•	•	٠	Peterson and West
Baldy	•	•	•	•	•	•	•	•	•	•	•	Peterson and West
Maverick Fork	•	•	•	•	•	•	•	•	•	•	•	Peterson and West
Pacheta	•	•	•	•	•	•	•	•	•	•	•	F. Phillips
Nutrioso												
Coronado Trail .	•	•	•	•	•	•	•	•	•	•	٠	F. Casanova
Beaverhead	•		•	•		•	•	•				B. Burke
State Line												
Frisco Divide	•						•					J. B. Shumate
Inman												
Taylor Creek												F. M. Inman
Grand Canvon												Ruesch and Moore
Bright Angel												Valentine and Hall

.

The following organizations cooperate in the Arizona snow survey work:

FEDERAL

Department of Agriculture Forest Service

Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest
Sitgreaves Forest
Southwestern Forest and Range Expt.
Station, Fort Valley, Arizona
Sierra Ancha Experiment Forest Station

Soil Conservation Service Division of Irrigation

Department of Commerce
Weather Bureau
Arizona Section

Department of Interior
Bureau of Reclamation
Region III
Geological Survey
Arizona District
Indian Service
Fort Apache Reservation
National Park Service
Grand Canyon National Park

Gila Water Commissioner Safford, Arizona

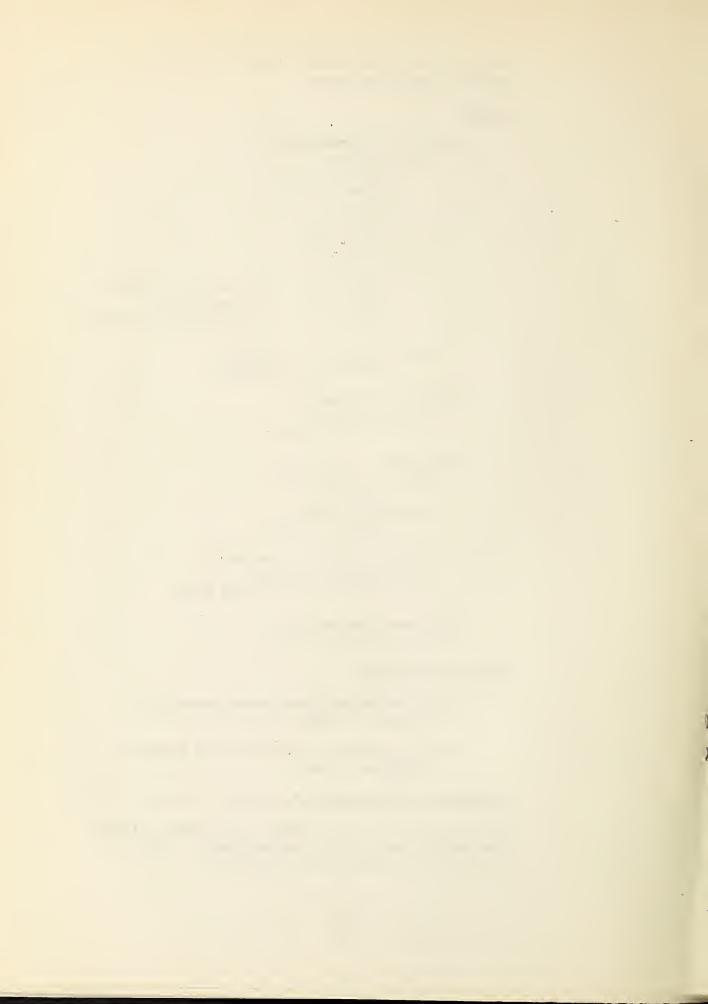
IRRIGATION PROJECTS

Salt River Valley Water Users Association Phoenix, Arizona

San Carlos Irrigation and Drainage District Coolidge, Arizona

SOUTHWEST LUMBER MILLS, INC., McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



NOTICE: To recipients of Arizona Snow Survey and Water Supply Forecast Bulletins.

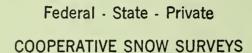
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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"